

WHAT IS CLAIMED IS:

1. An optical pickup for reading/writing data, comprising:

a convergent optical system, composed of a singlet objective lens having a NA not less than 0.75, for converging output light emitted by a light source on an optical storage medium; and

an aberration-correcting optical system for correcting coma aberrations due to an inclination or shift of central axes of both surfaces of the objective lens or an inclination of the objective lens or the optical storage medium to an optical axis of the optical pickup.

2. The optical pickup as defined in claim 1, wherein

the aberration-correcting optical system is composed of multiple elements, provided on an optical axis of the output light, for either converging or diffusing the output light and is mounted so that at least one of the elements is inclinable relative to the optical axis or movable at right angles to the optical axis.

3. The optical pickup as defined in claim 2, wherein

one of the elements is mounted to be movable in a

direction along the optical axis.

4. The optical pickup as defined in claim 3, wherein

the aberration-correcting optical system corrects spherical aberrations by moving one of the elements in a direction along the optical axis, after the aberration-correcting optical system corrects the coma aberrations by inclining the elements relative to the optical axis and moving the elements at right angles to the optical axis.

5. The optical pickup as defined in claim 4, wherein

the aberration-correcting optical system corrects the coma aberrations by detecting a shape or wavefront aberrations of a focused beam spot produced by the objective lens.

6. The optical pickup as defined in claim 3, further comprising:

aberration detecting means for detecting the coma or spherical aberrations based on a return light which is the output light reflected at the optical storage medium; and

element drive means for inclining the elements relative to the optical axis and moving the elements at

right angles to the optical axis to correct the coma aberrations and also for moving at least one of the elements in a direction along the optical axis to correct the spherical aberrations, all based on a detection result given by the aberration detecting means.

7. The optical pickup as defined in claim 1, wherein

the aberration-correcting optical system is composed of elements arranged in two separate groups, each group including at least one of the elements for either converging or diffusing the output light.

8. The optical pickup as defined in claim 7, wherein

one of the two groups has a positive refraction power, and the other group has a negative refraction power.

9. The optical pickup as defined in claim 8, wherein

at least one of the two groups is mounted to be movable in a direction along the optical axis.

10. The optical pickup as defined in claim 8, wherein

the group with a positive refraction power is disposed relatively close to the optical storage medium, and the group with a negative refraction power is

disposed relatively close to the light source.

11. The optical pickup as defined in claim 8, wherein  
the group with a negative refraction power is  
composed of a single lens made of a material having an  
Abbe constant of not more than 40.

12. The optical pickup as defined in claim 3, wherein  
the aberration-correcting optical system includes  
achromatic doublets as the elements.

13. The optical pickup as defined in claim 3, wherein  
the aberration-correcting optical system includes  
lenses, each having at least one aspheric surface, as the  
elements.

14. The optical pickup as defined in claim 3, wherein  
the aberration-correcting optical system includes  
wavefront converting means for converting a wavefront as  
the elements.

15. The optical pickup as defined in claim 14, wherein  
the wavefront converting means is either a liquid  
crystal element or a diffraction optical element.

16. The optical pickup as defined in claim 15, wherein  
the diffraction optical element is of either a blaze  
type or a binary type.

17. The optical pickup as defined in claim 1, wherein  
the objective lens is composed of a single lens.

18. The optical pickup as defined in claim 1, wherein  
the objective lens is a doublet.

19. The optical pickup as defined in claim 1, wherein  
the objective lens includes a material having an  
index of refraction of not less than 1.75 for at least  
one wavelength actually used in the optical pickup.